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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,201	02/06/2004	Kyoko Suzuki	09792909-5797	6961

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EXAMINER
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NEGRON, DANIEL L

ART UNIT	PAPER NUMBER
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2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/774,201

Applicant(s)

SUZUKI ET AL.

Examiner

Daniell L. Negrón

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishijima et al U.S. Patent No. 6,263,151 in view of Ozue et al U.S. Patent Application Publication No. 2004/0021982.

Regarding claim 1, Nishijima et al disclose a magnetic recording head for a helical scan type magnetic recording/reproducing apparatus comprising a multi-gap recording head having "n" gaps, where "n" is an integer greater than 2 (Fig. 1), wherein the gaps are pitched so as to record a pattern of tracks adjacent to one another (see Figs 3 and 4), and a gap for recording the last track among "n" recording gaps of the multi-gap recording head being wider than other gaps (Fig. 2). Furthermore, in Figure 2, Nishijima et al show standard play video head (3) as a gap to record the last track among "n" gaps. Nishijima et al fails to explicitly disclose the recording head as being formed by laminating.

However, Ozue et al discloses a magnetic recording head formed by laminating for the purpose of multi-channeling and for effectively processing narrower tracks (paragraphs 9 and 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form a magnetic recording head disclosed by Nishijima et al by way

Art Unit: 2627

of lamination as shown by Ozue et al since doing so would allow for narrower tracks on a recording medium and higher track density.

Regarding claim 2, Nishijima et al disclose a rotary drum unit (1) for a helical scan type magnetic recording/reproducing apparatus comprising a recording/reproducing head and a unit for transmitting recording and reproduced signals (see Figs 6 and 9, and disclosure thereof), the recording head comprises a multi-gap recording head having "n" recording gaps that are pitched so as to record a pattern of tracks adjacent to one another (see Figs. 3 and 4), where "n" is an integer greater than 2, and a gap for recording the last track among "n" recording gaps of the multi-gap recording head being wider gap than other gaps (Fig. 2). Furthermore, in Figure 2, Nishijima et al show standard play video head (3) has as a gap to record the last track among "n" gaps. Nishijima et al fails to explicitly disclose the recording head as being formed by laminating.

However, Ozue et al discloses a recording head formed by laminating for the purpose of multi-channeling and for effectively processing narrower tracks (paragraphs 9 and 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form a rotary drum unit comprising a magnetic recording head disclosed by Nishijima et al by way of lamination as shown by Ozue et al since doing so would allow for narrower tracks on a recording medium and higher track density.

Regarding claim 3, Nishijima et al as modified by Ozue et al disclose a rotary drum unit comprising all the limitations of claim 2 as discussed above. Nishijima et al further disclose a rotary drum unit wherein two multi-gap reproducing heads each having "n" gaps are arranged at an angle of 180 degrees to each other (column 5, lines 51-55).

Regarding claim 4, Nishijima et al as modified by Ozue et al disclose a rotary drum unit comprising all the limitations of claim 2 as discussed above. Nishijima et al further disclose a rotary drum unit wherein a multi-gap reproducing head having " $2n$ " gaps is arranged at an angle of 180 degrees to the multi-gap recording head (see Fig. 1 and column 5, lines 51-55).

Regarding claims 5 and 6, Nishijima et al disclose a rotary drum unit capable of recording " $n$ " tracks per rotation, comprising two multi-gap reproducing heads each having  $(n + m)$  or  $(2n + m)$  gaps are mounted (see Fig. 2), wherein " $n$ " is an integer greater than 2 and " $m$ " is an integer greater than or equal to 1 respectively. Nishijima et al disclose that in either standard play or long play modes of recording/reproducing, there are always two additional heads (i.e.,  $m$ ) being rotated along with the heads being used (i.e.,  $n$ ) during the selected mode. Nishijima et al fails to explicitly disclose the recording head as being formed by laminating.

However, Ozue et al discloses a magnetic recording head formed by laminating for the purpose of multi-channeling and for effectively processing narrower tracks (paragraphs 9 and 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form a rotary drum unit comprising a magnetic recording head disclosed by Nishijima et al by way of lamination as shown by Ozue et al since doing so would allow for narrower tracks on a recording medium and higher track density.

Regarding claim 7, Nishijima et al disclose a magnetic recording method for a helical scan type magnetic recording/reproducing apparatus, wherein the apparatus includes a multi-gap recording head having " $n$ " recording gaps, where " $n$ " is an integer greater than 2, that are pitched so as to record a pattern for recording the last one of the tracks among " $n$ " gaps of multi-gap

Art Unit: 2627

recording head being a wider recording gap than other gaps (Fig. 2). Furthermore, in Figure 2, Nishijima et al show standard play video head (3) has as a gap to record the last track among "n" gaps, the method comprising the steps of recording the tracks by determining a tape running speed such that a minimum recorded track width can be ensured when the multi-gap recording head overwrites after one rotation of recording completed by the gap (column 6, lines 47-67). Nishijima et al fails to explicitly disclose the recording head as being formed by laminating.

However, Ozue et al discloses a magnetic recording head formed by laminating for the purpose of multi-channeling and for effectively processing narrower tracks (paragraphs 9 and 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form a magnetic recording head disclosed by Nishijima et al by way of lamination as shown by Ozue et al since doing so would allow for narrower tracks on a recording medium and higher track density.

Regarding claim 8, Nishijima et al as modified by Ozue et al disclose a magnetic recording method comprising all the limitations of claim 7 as discussed above. Nishijima et al further disclose a magnetic recording method in which signals are reproduced by a multi-gap reproducing head having a head width which is  $\frac{1}{2}$  of a track width or less (see audio reproducing head in relation to standard play video reproducing head in Fig. 2), wherein two multi-gap reproducing heads each having "n" gaps are arranged at an angle of 180 degrees to each other on a rotary drum (Fig. 1) as the multi-gap head, and the two multi-gap reproducing heads are switched on the rotary drum to transmit reproduced signals therefrom via a rotary transformer

Art Unit: 2627

having "n" recording channels and "n" reproducing channels (see Figs. 9 and 15 and disclosure thereof).

Regarding claims 9, 13, and 14, claims have limitations similar to those treated in the above rejections, and are met by the references as discussed above.

Regarding claims 10-12, 15, and 16, method claims 10-12, 15, and 16 are drawn to the method of using the corresponding apparatus claimed in claims 1, 2, 5, and 6. Therefore method claims 10-12, 15, and 16 correspond to apparatus claims 1, 5, and 6 and are rejected for the same reasons of anticipation as used above.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new grounds of rejection.

### ***Prior Art***

The following references are cited as of interest for disclosure of laminated multi-gap recording/reproducing heads:

Braun U.S. Patent No. 3,555,204.

Ishida et al U.S. Patent No. 6,088,178.

Ozue et al U.S. Patent No. 6,801,379.

***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniell L. Negrón whose telephone number is 571-272-7559. The examiner can normally be reached on Monday-Friday (8:30am-5:00pm).

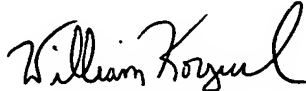
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DLN   
January 3, 2007

  
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